

Instruction Manual Electronic Crane Scales

Logbook Regular maintenance and care

KERN HUS/HUM

Version 3.1
11/2011
GB



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KERN HUS/HUM

Version 3.1 11/2011

Operating instructions / logbook Electronic Crane Scales

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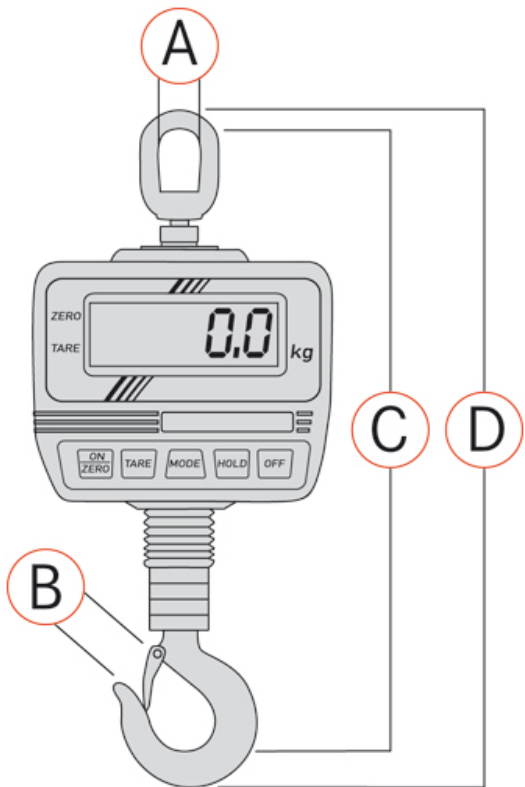
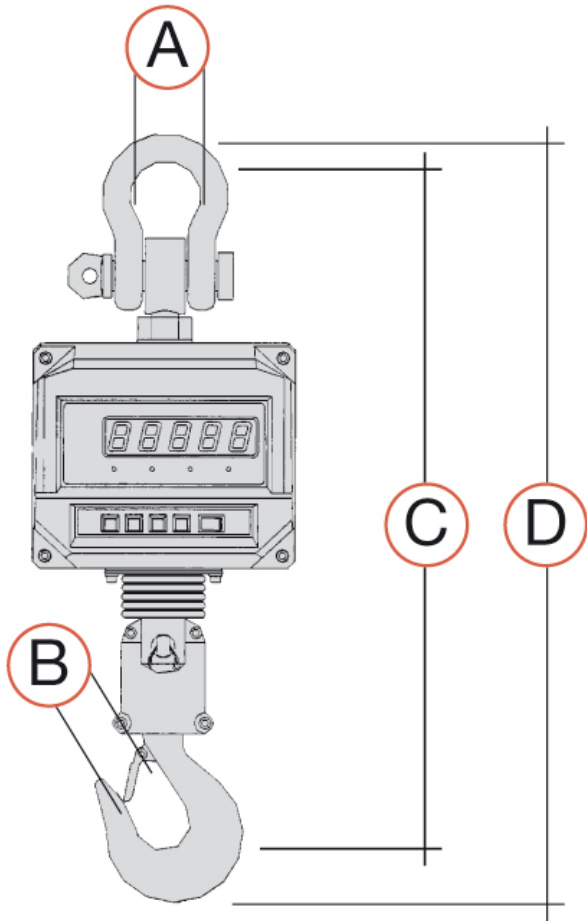
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1. Technical data

KERN	HUM 1000K500	HUM 3000K100
Readability (d)	500 g	1 kg
Weighing range (max)	1 000 kg	3 000 kg
Taring range (subtractive)	1 000 kg	3 000 kg
Reproducibility	500 g	1 kg
Linearity	±1 kg	±2 kg
Recommended adjustment weight, not added (class)	1 t (M3)	2 t (M3)
Possible Adjustment Points	500 kg; 1 t	1 t; 2 t
Stabilization time	2 s	
Precision	0.2 % of max.	
Warm-up time	10 min	
Unit	kg	
Allowable ambient temperature	0...+40 °C	
Relative humidity	0 to 85 %, non-condensing	
Input Voltage	100 ~ 240VAC	
Secondary voltage powerpack	12VDC, 500 mA	
Rechargeable battery (standard equipment)	Output 6 V 10 Ah Service life 80 h Loading time 8 h	
Display	Digit height 25 mm	
Housing size W x D x H, (mm)	210 x 228 x 180	
Housing material	Metal, lacquered	
Material hooks and shackle	Painted steel	
Net weight (kg)	16	18
Remote control (standard equipment)	1 battery (23A, 12V) included	

KERN	HUS150K50	HUS300K100	HUS600K200
Readability (d)	0.05 kg	0.1 kg	0.2 kg
Weighing range (max)	150 kg	300 kg	600 kg
Taring range (subtractive)	150 kg	300 kg	600 kg
Reproducibility	0.05 kg	0.1 kg	0.2 kg
Linearity	± 0.1 kg	±0.2 kg	±0.4 kg
Recommended adjustment weight, not added (class)	100 kg (M3)	200 kg (M3)	2x200 kg (M3)
Possible Adjustment Points	40 kg; 100 kg	100 kg; 200 kg	200 kg; 400 kg
Stabilization time	2 s		
Precision	0.2 % of max.		
Warm-up time	10 min		
Unit	kg		
Allowable ambient temperature	0...+40 °C		
Relative humidity	0 to 85 %, non-condensing		
Input Voltage	100 ~ 240VAC		
Secondary voltage powerpack	9VDC, 500 mA		
Rechargeable battery (standard equipment)	Output 6 V 4.5 Ah Service life 120 h Loading time 8 h		
Display	Digit height 23 mm		
Housing size W x D x H, (mm)	150 x 145 x 160		
Housing material	Plastic		
Material hooks and shackle	Painted steel		
Net weight (kg)	4.0	18	
Remote control (standard equipment)	2 x 1.5 V AAA included		

1.1 Dimensions (mm)

KERN HUS					KERN HUM				
									
	A	B	C	D		A	B	C	D
HUS150K50	24	14	330	380	HUM 1000K500	56	42	550	620
HUS300K100	24	14	330	380	HUM 3000K100	73	45	580	650
HUS600K200	24	14	350	400					

2. General Safety Instructions

Duties of the owner-operator

Follow the national accident prevention regulations as well as the working, operating and safety regulations of the owner-operator.

- Observe all safety regulations of the crane manufacturer.
- The balance may only be used for the proposed purpose. Any type of use which is not specified in these operating instructions, will be considered as improper use. The customer is solely responsible for material damage and injury of persons resulting from an improper use, Messrs. KERN & Sohn will not be liable under any circumstance.

Messrs. KERN & Sohn cannot be held liable, if the crane scales are modified or used improperly and if damage is resulting from such use.

- Carry out regular maintenance and care of the crane scales, the crane and the load suspension devices (see chapter 9).
- Log the test result and keep it in the logbook.

Organizational measures

- Only trained and instructed staff may operate the balance.
- Make sure that the operating instructions are kept nearby the operation site of the crane scales.
- Assembly, commissioning and maintenance should only be carried out by trained specialists.
- Repair of safety-relevant pieces may only be carried out by KERN or by service partners authorized by Messrs. KERN. (competence certificate or training).
- Use original spare parts only.
- All repairs and spare parts must be documented by the service partner (see list, chap. 10.2).
- All maintenance must be documented (see checklist chap. 9.3).
- Load suspending components may only be exchanged as a complete spare parts set. The dimensions of the new components must be noted (see checklist chapter 9.3).

Environmental conditions

- Never operate the crane scales in explosive environment. The serial version is not explosion protected.
- Operate the crane scales only under environmental conditions as specified in these operating instructions (especially in chapter 1 „Technical data“).
- Do not expose the crane scales to strong humidity. Non-permitted condensation (condensation of air humidity on the appliance) may occur if a cold appliance is taken to a considerably warmer environment. In this case, acclimatize the disconnected appliance for ca. 2 hours at room temperature.
- Do not operate the crane scales in corrosive environment.
- Protect the crane scales against high humidity, vapours and dust.

- Major display deviations (incorrect weighing results) may be experienced should electromagnetic fields (e.g. due to mobile phones or radio equipment), static electricity accumulations or instable power supply occur. Change location or remove source of interference.

Proper use

The balance you purchased is intended to determine the weighing value of material to be weighed. It is intended to be used as a “non-automatic” balance, i.e. the material to be weighed is suspended on the crane hook only vertically, manually, carefully and without jerks. As soon as a stable weighing value is reached the weighing value can be read.

- Use the crane scales only for lifting and weighing of freely movable loads.
- Danger of injury due to improper use. Not allowed are e.g.:
 - Exceeding the allowed nominal load of crane, crane scales or any type of load attachment devices
 - Conveying persons,
 - Pulling loads over an inclined surface,
 - Tearing-off, pulling or towing loads.
- Modifications or reconstructions of the crane scales or of the crane are not allowed.

Improper Use

Do not use balance for dynamic weighings. In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the “stability compensation”. (Example: Slowly draining fluids from a container suspended on the balance.) Do not leave permanent load suspended on the balance. This may damage the measuring system as well as safety-relevant parts.

The balance may only be used according to the described conditions. Other areas of use must be released by KERN in writing.

Warranty

Warranty claims shall be voided in case

- Our conditions in the operation manual are ignored
- The appliance is used outside the described uses
- The appliance is modified or opened
- Mechanical damage and damage caused by media, liquids,
- Natural wear and tear
- The appliance is improperly set up or incorrectly electrically connected
- The measuring system is overloaded

Safe working

- Do not stand underneath suspended loads!
- Position the crane in a way that the load is lifted vertically.
- When working with the crane and crane scales wear personal safety equipment (helmet, safety shoes etc.).

Monitoring of Test Resources

In the framework of quality assurance the measuring-related properties of the balance and, if applicable, the testing weight, must be checked regularly. The responsible user must define a suitable interval as well as type and scope of this test. Information is available on KERN's home page (kern-sohn) with regard to the monitoring of balance test substances and the test weights required for this. In KERN's accredited DKD calibration laboratory test weights and balances may be calibrated (return to the national standard) fast and at moderate cost.

Testing upon acceptance

When receiving the appliance, please check packaging immediately, and the appliance itself when unpacking for possible visible damage.

Initial Commissioning

In order to obtain exact results with the electronic balances, your balance must have reached the operating temperature (see warming up time chap. 1).

During this warming up time the balance must be connected to the power supply (mains, accumulator or battery).

The accuracy of the balance depends on the local acceleration of gravity.

Strictly observe hints in chapter Adjustment.

For checking original dimensions, s. chap. 4.2

Shutdown and storage

- Take off the crane scales from the crane and dismantle all load attachment devices from the crane scales.
- Do not store the crane scales at open air

3. The crane scales at a glance

The crane scales are a multi-purpose and cost-saving solution for overhead weighing applications such as e.g. recycling, metal processing, machine engineering, transport and logistics.

With the radio remote control, operation will be more comfortable yet.

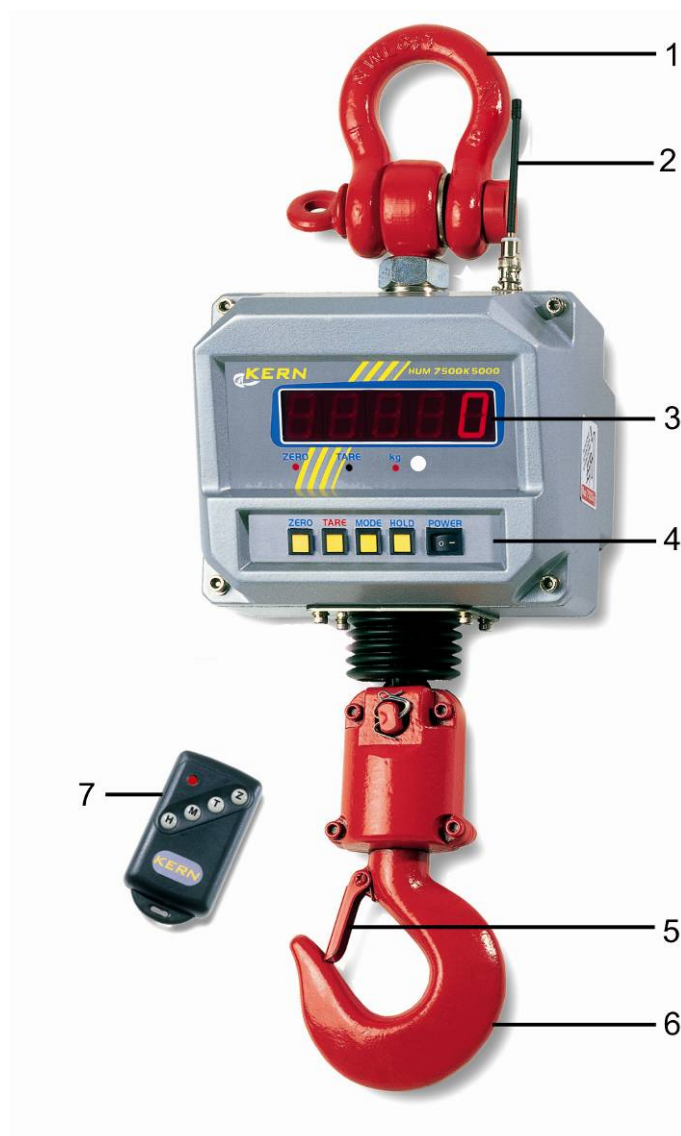
3.1 Overview

KERN HUS



- 1 Eyelet
- 2 Display
- 3 Keyboard
- 4 Safety bracket
- 5 Hook, revolvable
- 6 For radio remote control, s. chap. 3.4

KERN HUM



- 1 Shackle
- 2 Antenna
- 3 Display
- 4 Keyboard
- 5 Safety bracket
- 6 Hook, revolvable
- 7 For radio remote control, s. chap. 3.4

3.2 Display

1. KERN HUS



- The indicator ● appears next to ZERO when weight is around Zero point range.
- The indicator ◀ appears next to TARE after scales have been tared.
- The indicator ▶ next to „kg“ shows that the weight unit currently displayed is „kg“.

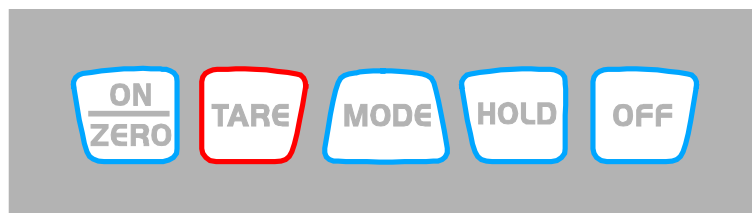
2. KERN HUM



- The LED above **ZERO** is illuminated when weight is around Zero point range.
- The LED above **TARE** is illuminated after scales have been tared.
- The LED above **ZERO** is illuminated when the weight unit currently displayed is „kg“.

3.3 Keyboard

1. KERN HUS



Taste	Funktionsbeschreibung
ON/ZERO	<ul style="list-style-type: none"> • Turn on the balance
TARE	<ul style="list-style-type: none"> • Taring • Select function in menu
MODE	<ul style="list-style-type: none"> • Select menu settings • Turn on or off backlight
HOLD	<ul style="list-style-type: none"> • Record weight value (freeze) • Exit menu
OFF	<ul style="list-style-type: none"> • Turn off the balance

2. KERN HUM



Key	Description of function
ZERO	<ul style="list-style-type: none"> • Zeroing
TARE	<ul style="list-style-type: none"> • Taring • Select function in menu
MODE	<ul style="list-style-type: none"> • Select menu settings
HOLD	<ul style="list-style-type: none"> • Record weight value (freeze) • Exit menu
POWER	<ul style="list-style-type: none"> • Turn on or off the balance


3.4 Radio remote control

The balance can be operated by the radio remote control like by a keyboard. All functions (excepted POWER **ON/OFF**) can be selected.

The LED should light up each time a key is pressed. If it does not light up, the batteries in the remote control must be exchanged.


1. HERN HUS

Range on free surface (free of buildings) approx. 2.5 m.

	Key Remote control	Corresponding key on scales	Function
	POWER	ON/ZERO	Standby mode ↕ Weighing mode
	ZERO	ON/ZERO	Zeroing
	TARE	TARE	Taring
	MODE	MODE	Select menu settings Turn on or off backlight
	HOLD	HOLD	Record weight value (freeze)

2. HERN HUM

Range on free surface (free of buildings) approx. 25 m.

	Key Remote control	Corresponding key on scales	Function
	Z	ZERO	Zeroing
	T	TARE	Taring
	M	MODE	Select menu settings
	H	HOLD	Record weight value (freeze)

3.5 Label



(Example)

⇒ Do not exceed nominal load of crane scales.





⇒ The product conforms to the requirements of the German Equipment and Product Safety Act.

4. Commissioning

Attention: Always observe chapter 2 „General Safety Instructions“!

4.1 Unpacking


 <p>SAFETY INSTRUCTIONS for protection against break</p>	<p>Once delivered and unpacked, crane scales will not be taken back.</p>
	<p>The crane scales have been sealed by Messrs. KERN.</p> <ul style="list-style-type: none"> ⇒ Shackles and hooks are sealed by Sella tape. ⇒ The packaging is also sealed by adhesive tape. <p>+ Broken seal obliges to purchase.</p>
	<p>Thanks for your comprehension. Your KERN Quality assurance team</p>
 <p>CAUTION Danger for the back!</p>	<p>The crane scales are compact and quite heavy.</p> <ul style="list-style-type: none"> ⇒ Remove the scales from packaging only with the help of a second person. ⇒ Use a lifting device such as a crane or a forklift truck. ⇒ Secure the scales that they cannot fall down when they are lifted.

Only use original packaging for returning.


- ⇒ Make sure that all parts are completely present.
 - Crane scales
 - Rechargeable battery
 - Mains adapter
 - Remote control
 - Operating instructions (logbook)

4.2 Checking the original dimensions

- ⇒ Enter the original dimensions shown on the production data sheet in the grey boxes of checklist chap. 9.3.
- ⇒ Check original dimension of crane scales; for implementation see chap. 9.2 „Regular Maintenance“
- ⇒ Enter all data (date, tester, results) in the first line under „Inspection before first use“ in the checklist (see chapter 9.3)

 <p>CAUTION</p>	<p>If the dimensions of your first safety inspection do not match those of KERN, the balance must not be put into operation. In this case please contact a service partner authorised by Messrs. KERN.</p>
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4.3 Power supply - rechargeable battery mode

 CAUTION	Material damage on crane scales <ul style="list-style-type: none">⇒ Only use the delivered mains adapter.⇒ Make sure that the mains adapter, the cable and the mains plug are in a perfect condition.⇒ Do not use the crane scales during the loading process.
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Recharge battery:



① Rechargeable battery status display

The LED display informs you during loading about the loading status of the rechargeable battery.

red: Voltage has dropped below prescribed minimum.

green: Battery is completely charged.

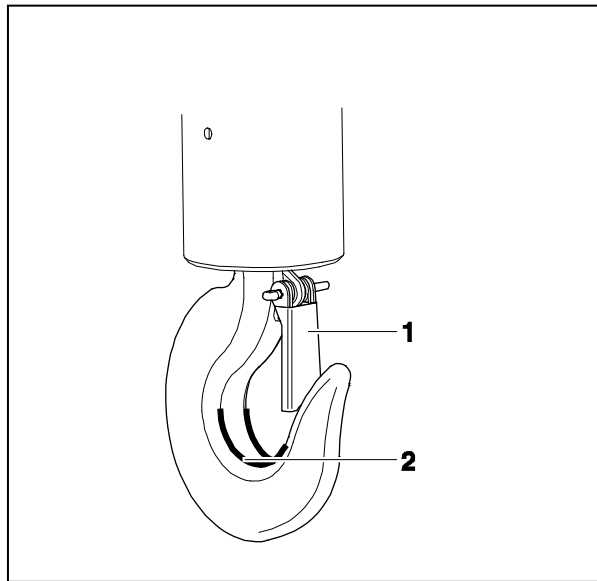
② Mains adapter connection

Before the first use, the rechargeable battery should be charged by connecting it to the mains power cable for at least 10 hours.

To conserve energy, enable the automatic switch-off function „AUTO OFF“, KERN HUM see chap.. 5.8 ./ KERN HUS see chap..6.8.

When the crane scales are out of operation for a longer period, remove the rechargeable battery.

4.4 Suspending the balance



Condition

The crane needs a safety bracket (1) that the unloaded crane scales cannot fall down.

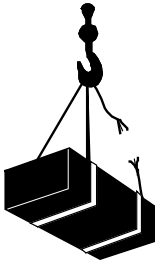


If the safety bracket is missing or damaged, please contact the crane manufacturer in order to receive a hook with this safety equipment.

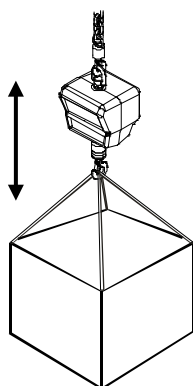
⇒ Suspend the crane scales on the lower hook of a crane and close the safety bracket.

The crane scale's upper eyelet should rest in the saddle (2).

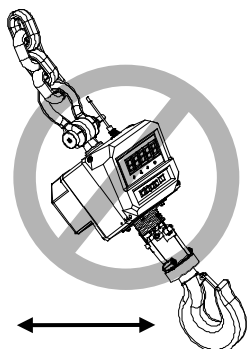
5. Operation KERN HUM

5.1 Safety instructions

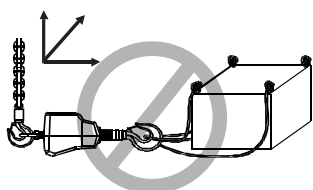
	 <p>Risk of injury due to falling loads!</p> <p>Danger</p>
  <p>(Example)</p>	<ul style="list-style-type: none"> ⇒ Take great care when operating the crane and follow the general rules for crane operation. ⇒ Check all parts (hook, eyelet, rings, rope slings, cables, chains etc.) for excessive wear or damage ⇒ If faults can be seen on the safety bracket of the hook or if it is missing completely, the scales must not be used ⇒ Work only with appropriate speed ⇒ Do not stand or go under suspended loads. ⇒ Do not use on building site. ⇒ Keep an eye on suspended loads. ⇒ Do not exceed the nominal load of crane, crane scales or any kind of load attachment devices at the crane scales.



⇒ Make sure that scales are loaded in vertical direction of pull



⇒ Always avoid vibrations and horizontal forces. Avoid any kind of shock, torsion and oscillating (e.g. caused by inclined suspending)



⇒ Do not use the crane scales for transporting loads.

5.2 Loading the crane scales

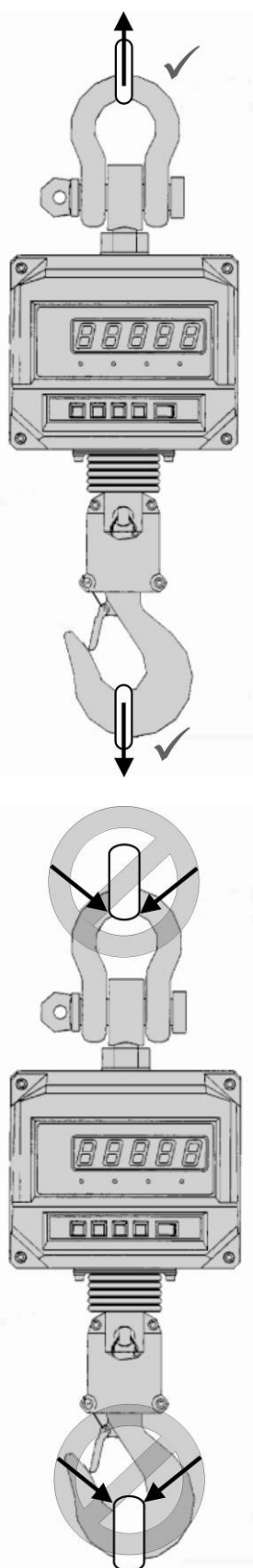
To achieve good weighing results please refer to the next page, fig. 1 and 2:

- ⇒ Only use load attachment devices which guarantee a one-spot suspension and where the scales can be suspended freely.
- ⇒ Do not use too large load attachment devices which do not guarantee any one-spot suspension.
- ⇒ Do not use multiple suspensions.
- ⇒ Do not pull or push the load or the loaded balance.
- ⇒ Do not pull the hook horizontally.

Loading the balance

1. Position the hook of the crane scales over the load.
2. Move downwards the crane scales until the load can be suspended on the hook of the balance. Reduce the speed when the respective height is going to be reached.
3. Suspend the load on the hook. Ensure that the safety bracket is closed. If the load is fixed by slings, ensure that the slings rest completely on the saddle of the balance hook.
4. Lift-off the load slowly.

When the load is fixed by slings, ensure that the load is well balanced on both sides and that the slings are correctly positioned



Only use load attachment devices which guarantee a one-point suspension and where the scales can be suspended freely.

Do not use too large load attachment devices which cannot guarantee a one-point suspension.

Fig. 1

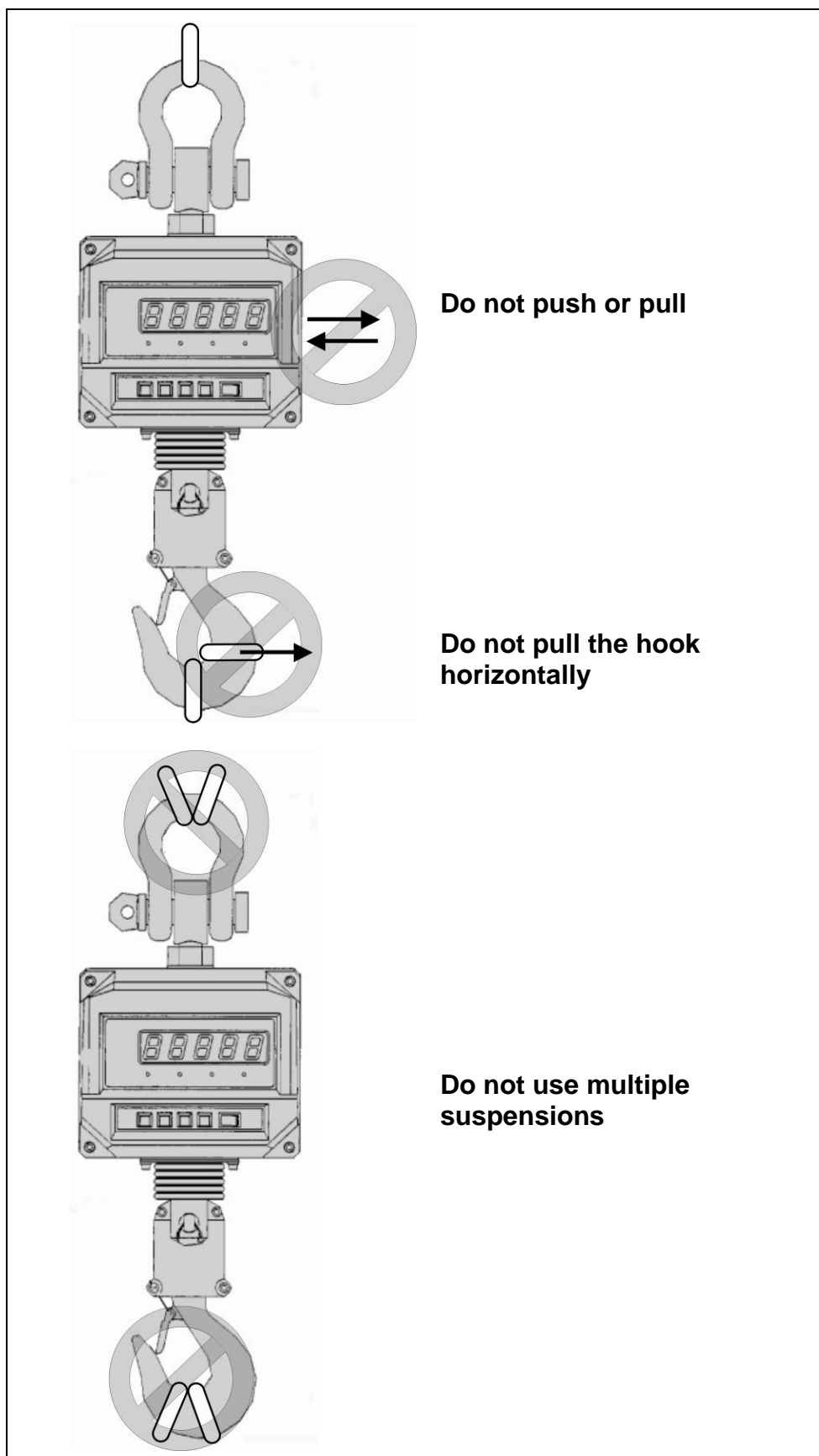
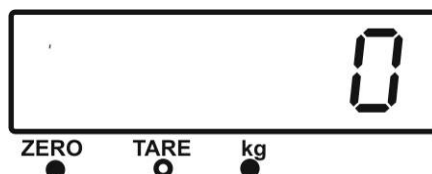


Fig. 2

5.3 Turn on/off

Start-up

- ⇒ Press the **POWER**-key on the scales' keyboard. The display lights up and the balance carries out a selftest. The selftest is completed when the weight value 0 appears on the display.



Switch on only possible at the keyboard of the balance.

Switching Off

- ⇒ Press the **POWER**-key on the scales' keyboard.

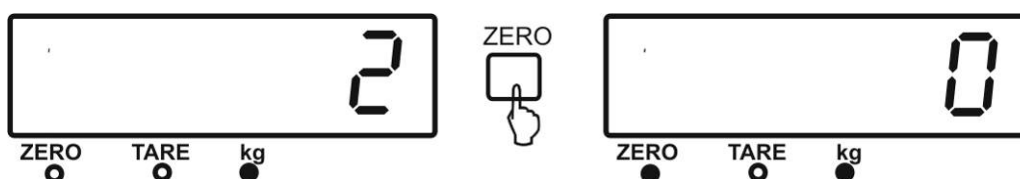
5.4 Set balance to zero

In order to obtain optimal weighing results, reset to zero the balance before weighing.

- ⇒ Unload the balance

- ⇒ Press the **ZERO** button.

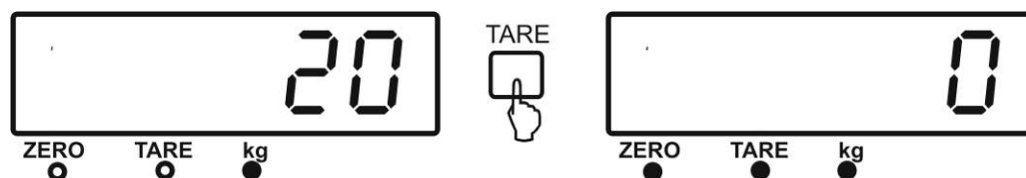
In the display appears 0 (kg) and the **LED** over **ZERO** lights up.



5.5 Taring

⇒ Suspend preload.

Press the **TARE** key. In the display appears 0 (kg) and the **LED** over **TARE** lights up. The weight of the container is now internally saved.



⇒ Weigh the material, the net weight will be indicated.

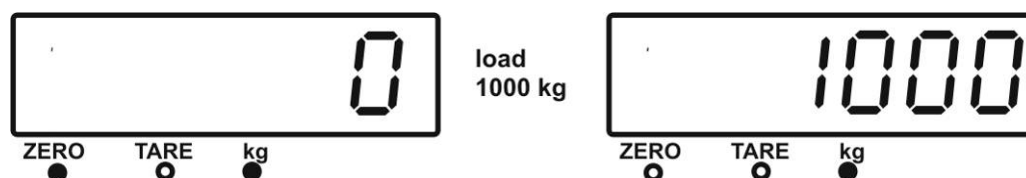


- After removing the preload weight appears as negative display.
- The balance is able to only store one taring value at a time.
- The weighing range (max) for the scales will be reduced by the tared range.
- To delete the tare value, remove load from weighing pan and press the **TARE** button.

5.6 Weighing

⇒ Loading the crane scales.

The weight value will be displayed at once.



Overload warning

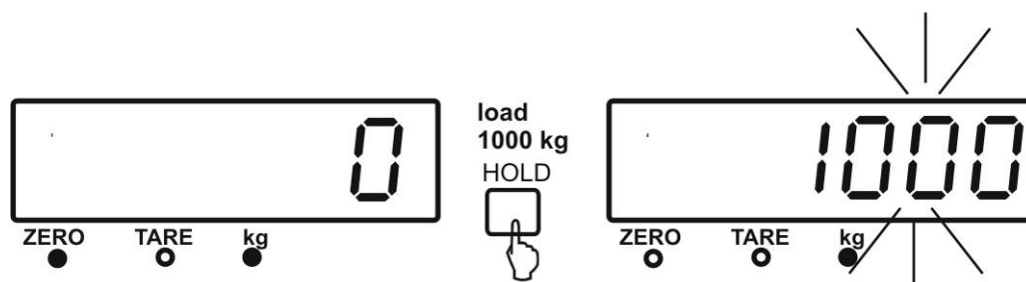
Overloading exceeding the stated maximum load (max) of the balance, minus a possibly existing tare load, must be strictly avoided. This could cause damage to the balance.

Exceeding the maximum load is indicated by the display „nnnnnn“.

Unload balance or reduce preload.

5.7 Record weight value (freeze)

- ⇒ Press the **HOLD** button to „freeze“ or to record the current weight value. It remains displayed flashing until it is deleted.



In order to delete the "frozen" or the recorded weight, press any button.

5.8 Automatic switch-off (AUTO OFF)

- ⇒ Switch off the balance.
- ⇒ Press the **TARE**-key and switch on the scales at the same time. The first function „F.1“ is displayed.



- ⇒ Press the **TARE**-key repeatedly until „F.4“ appears on the screen.



- ⇒ Confirm by pressing the **MODE**-key. The current setting will be displayed.

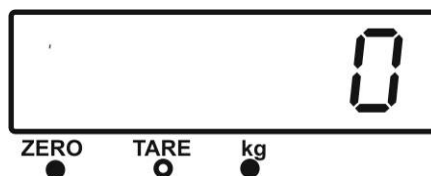
0._OFF: Automatic switch-off function is disabled.

4._OFF: The scales will now switch off automatically after 4 minutes without change of load (default).

⇒ Use the **MODE** button to switch over into the available settings.

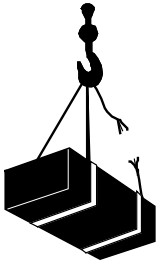







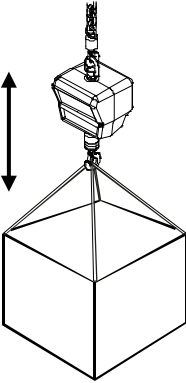
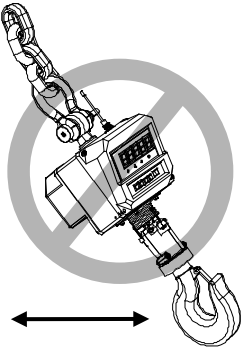
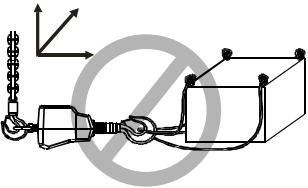
⇒ Save the selected setting by pressing the **ZERO**-key. The balance returns to weighing mode.



6. Operation KERN HUS

6.1 Safety instructions

	 <p>Risk of injury due to falling loads!</p> <p>Danger</p>
    <p>(Example)</p>	<ul style="list-style-type: none"> ⇒ Take great care when operating the crane and follow the general rules for crane operation. ⇒ Check all parts (hook, eyelet, rings, rope slings, cables, chains etc.) for excessive wear or damage ⇒ If faults can be seen on the safety bracket of the hook or if it is missing completely, the scales must not be used ⇒ Work only with appropriate speed ⇒ Do not stand or go under suspended loads. ⇒ Do not use on building site. ⇒ Keep an eye on suspended loads. ⇒ Do not exceed the nominal load of crane, crane scales or any kind of load attachment devices at the crane scales.

	<p>⇒ Make sure that scales are loaded in vertical direction of pull</p>
	<p>⇒ Always avoid vibrations and horizontal forces. Avoid any kind of shock, torsion and oscillating (e.g. caused by inclined suspending)</p>
	<p>⇒ Do not use the crane scales for transporting loads.</p>

6.2 Loading the crane scales

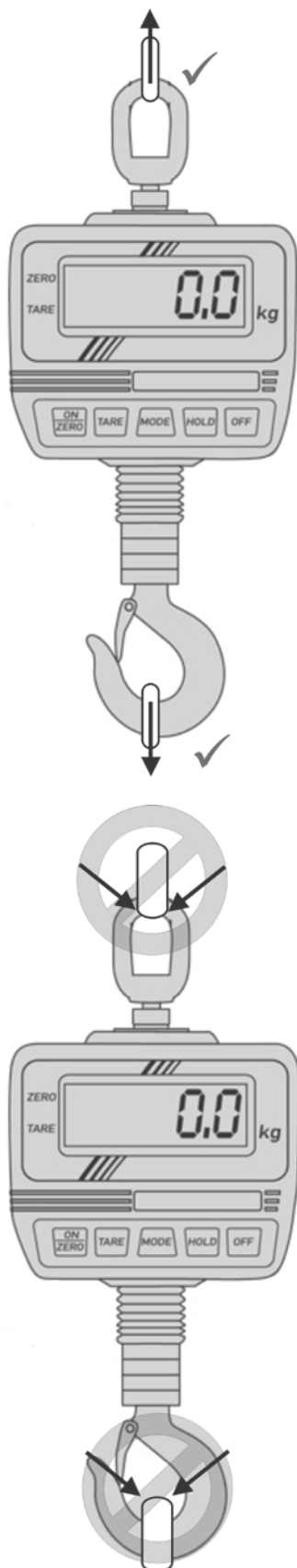
To achieve good weighing results please refer to the next page, fig. 3 and 4:

- ⇒ Only use load attachment devices which guarantee a one-spot suspension and where the scales can be suspended freely.
- ⇒ Do not use too large load attachment devices which do not guarantee any one-spot suspension.
- ⇒ Do not use multiple suspensions.
- ⇒ Do not pull or push the load or the loaded balance.
- ⇒ Do not pull the hook horizontally.

Loading the balance

1. Position the hook of the crane scales over the load.
2. Move downwards the crane scales until the load can be suspended on the hook of the balance. Reduce the speed when the respective height is going to be reached.
3. Suspend the load on the hook. Ensure that the safety bracket is closed. If the load is fixed by slings, ensure that the slings rest completely on the saddle of the balance hook.
4. Lift-off the load slowly.

When the load is fixed by slings, ensure that the load is well balanced on both sides and that the slings are correctly positioned



Only use load attachment devices which guarantee a one-point suspension and where the scales can be suspended freely.

Do not use too large load attachment devices which cannot guarantee a one-point suspension.

Fig. 3

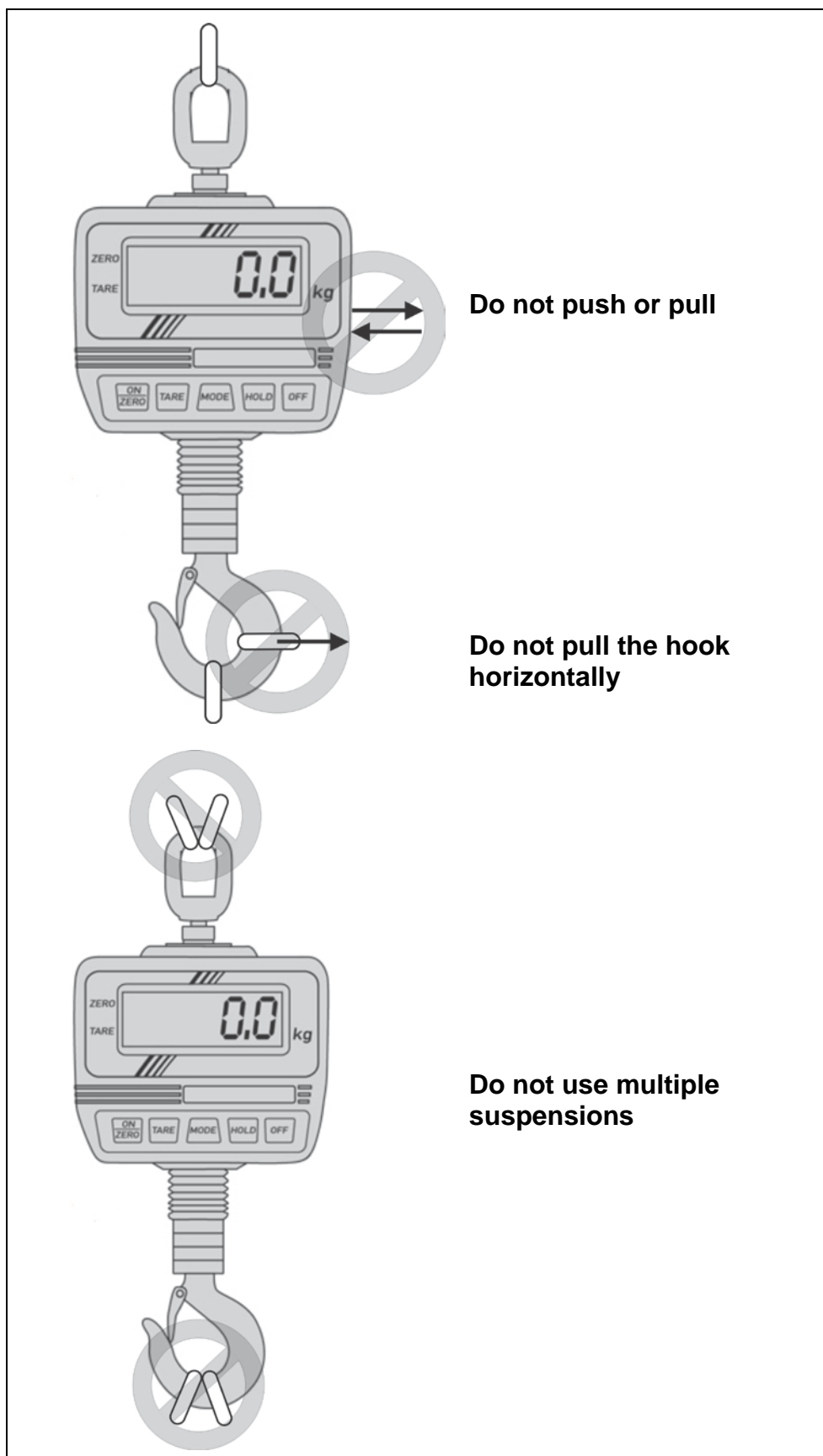


Fig. 4

6.3 Turn on/off

Start-up

- ⇒ Press the **ON/ZERO**-key on the scales' keyboard. The display lights up and the balance carries out a selftest. The selftest is completed when the weight value 0 appears on the display.



Switch on only possible at the keyboard of the balance.

Switching Off

- ⇒ Press the **OFF**-key on the scales' keyboard.

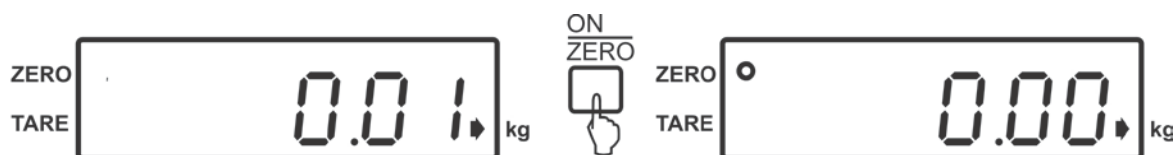
6.4 Set balance to zero

In order to obtain optimal weighing results, reset to zero the balance before weighing.

- ⇒ Unload the balance

Press the **ON/ZERO** button.

In the display appears 0 (kg) and the indicator ● appears next to **ZERO**.



6.5 Taring

⇒ Suspend preload.

Press the **TARE** key. In the display appears 0 (kg) and the indicator ◀ appears next to **TARE**. The weight of the container is now internally saved.



⇒ Weigh the material, the net weight will be indicated.



- After removing the preload weight appears as negative display.
- The balance is able to only store one taring value at a time.
- The weighing range (max) for the scales will be reduced by the tared range.
- To delete the tare value, remove load from weighing pan and press the **TARE** button.

6.6 Weighing

⇒ Loading the crane scales.

The weight value will be displayed at once.



Overload warning

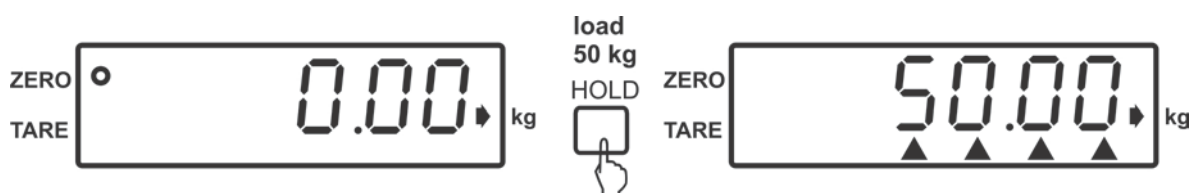
Overloading exceeding the stated maximum load (max) of the balance, minus a possibly existing tare load, must be strictly avoided. This could cause damage to the balance.

Exceeding the maximum load is indicated by the display „nnnnnn“.

Unload balance or reduce preload.

6.7 Record weight value (freeze)

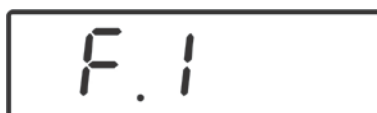
- ⇒ Press the **HOLD** button to „freeze“ or to record the current weight value. It remains displayed flashing until it is deleted.



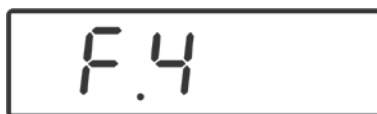
In order to delete the "frozen" or the recorded weight, press any button.

6.8 Automatic switch-off (AUTO OFF)

- ⇒ Switch off the balance.
- ⇒ Press the **TARE**-key and switch on the scales at the same time. The first function „F.1“ is displayed.



- ⇒ Press the **TARE**-key repeatedly until „F.4“ appears on the screen.



- ⇒ Confirm by pressing the **MODE**-key. The current setting will be displayed.

0._OFF: Automatic switch-off function is disabled.

4._OFF: The scales will now switch off automatically after 4 minutes without change of load (default).

⇒ Use the **MODE** button to switch over into the available settings.



⇒ Save the selected setting by pressing the **ON/ZERO**-key. The balance returns to weighing mode.



7. Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each balance must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted to the location in the factory). This adjustment process must be carried out for the first commissioning, after each change of location as well as in case of fluctuating environment temperature. To receive accurate measuring values it is also recommended to adjust the balance periodically in weighing operation.

Carry out adjustment as close as possible to the maximum load of the scales, see chap. 1 „Technical data“. Weights providing different nominal values can be used but from a metrological point of view this is not ideal. For admissible adjustment weights see table 1.

Tab. 1:

Model	Admissible Adjustment Weights
HUS150K50	40 kg; 100 kg
HUS300K100	100 kg; 200 kg
HUS600K200	200 kg; 400 kg
HUM 1000K500	500 kg; 1 t
HUM 3000K100	1 t; 2 t

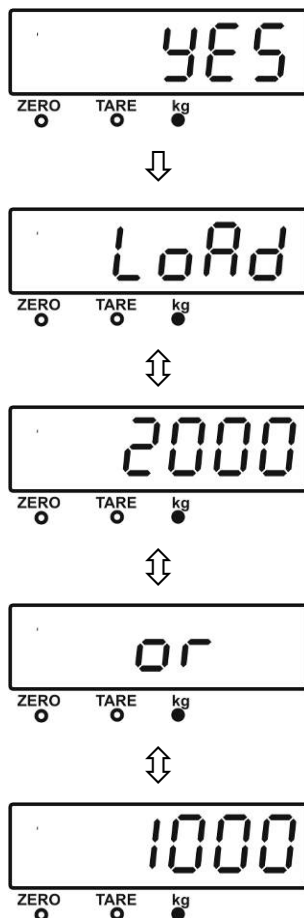
7.1 KERN HUM

Observe stable environmental conditions. A warming up time (see chapter 1) is required for stabilization.

- ⇒ Switch-off balance and attach a carrying help if necessary.
- ⇒ Press and hold **ZERO**- and **MODE** whilst at the same time switching on the scales with the carrying aid attached. Release keys, „**CAL?**“ will be displayed.



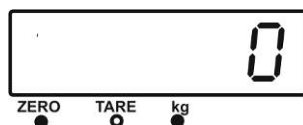
- ⇒ Press the **MODE**-key, „**YES**“ will be displayed, followed by an alternating display such as „**Load** ➔ **2000** ➔ **or** ➔ **1000**“.
The admissible adjustment weights will be displayed.



- ⇒ Attach the admissible adjustment weights (s. table 1). Wait until the scales display „**done**“, and start to count down.



- ⇒ After successful adjustment the balance carries out a selftest and automatically returns to weighing mode. Remove adjustment weight and also the carrying aid, if attached.



i An adjusting error or incorrect adjusting weight will be indicated by the error message; repeat adjustment procedure.

7.2 KERN HUS

Observe stable environmental conditions. A warming up time (see chapter 1) is required for stabilization.

- ⇒ Switch-off balance and attach a carrying help if necessary.
- ⇒ Press and hold **ON/ZERO**- and **MODE** whilst at the same time switching on the scales with the carrying aid attached. Release keys, „**CAL?**“ will be displayed.

- ⇒ Press the **MODE**-key, „**YES**“ will be displayed, followed by an alternating display such as „**Load ➔ 100 ➔ or ➔ 40**“, see table 1.
The admissible adjustment weights will be displayed.







- ⇒ Attach the admissible adjustment weights (s. table 1). Wait until the scales display „**done**“, and start to count down.

- ⇒ After successful adjustment the balance carries out a selftest and automatically returns to weighing mode. Remove adjustment weight and also the carrying aid, if attached.




An adjusting error or incorrect adjusting weight will be indicated by the error message; repeat adjustment procedure.

8. Error messages


Error message	Description	Possible causes
	Maximum load exceeded	<ul style="list-style-type: none"> ⇒ Reduce load ⇒ Check whether the balance has been damaged
Flashing number display	Capacity of rechargeable battery exhausted	<ul style="list-style-type: none"> ⇒ Recharge battery

Should other error messages occur, switch balance off and then on again. If the error message remains inform manufacturer.

9. Cleaning, Maintenance and Disposal

 Danger	<p>Risk of injury and risk of material damage! The crane scales are part of a hoisting device! For a safe operation please observe the following:</p> <ul style="list-style-type: none"> ⇒ Have carried out a regular maintenance by trained specialized staff ⇒ Carry out regular maintenance and care, see chapter 9.2 and 9.3 ⇒ Have the parts exchanged only by trained specialized staff. ⇒ If there arose discrepancies with the safety checklist, the balance must not more be put into operation. ⇒ Do not repair the crane scales by yourself. Repair may only be carried out by service partners authorized by Messrs. KERN.
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9.1 Cleaning and Disposal

 CAUTION	<p>Damage on the crane scales!</p> <ul style="list-style-type: none"> ⇒ Do not use any industrial solutions or chemicals
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- ⇒ Clean the keyboard and the display with a soft cloth soaked in mild window cleaning agent.
- ⇒ Disposal of packaging and appliance must be carried out by operator according to valid national or regional law of the location where the appliance is used.

9.2 Regular maintenance and care

- ▲ The regular 3-month maintenance may only be carried out by an expert with competent knowledge of working with crane scales. Thereby the national regulations for prevention of accidents as well as the working, operation and safety regulations of the owner-operator.
- ▲ To check the dimensions only use suitable test devices.
- ▲ The regular 12-month maintenance must only be carried out by trained specialized staff (KERN customer service).
- ▲ The results of the maintenance must be written down in the checklist (chap. 9.3).
- ▲ The additional results of the extended maintenance have to be entered in the checklist (chapter 10.1).
- ▲ The replaced spare parts also must be entered, (chapter 10.2)

Regular maintenance:

Initial start-up, every 3 months or definitely after 12 500 weighing processes	<ul style="list-style-type: none"> ▪ Check all dimensions, see checklist chap. 9.3 ▪ Check the shackle for wear and tear, such as e.g. plastic deformation, mechanical damage (unevenness), notches, striation, cracks, corrosion, thread damage and torsions. ▪ Check the application of the safety bracket on the hook, moreover check for fault and correct function ▪ Ensure that the positioning screws at the shackle are not loose. <p>If a dimension exceeds the admitted deviation from the original dimension (see checklist, chap. 9.3) or if other discrepancies have been found, the balance must be repaired at once by trained specialized staff (KERN customer service). Never do repair it by yourself! Take balance out of operation immediately!</p> <p>All repairs and spare parts must be documented by the service partner (see list, chap. 10.2).</p>
Every 12 months or in any case after 50 000 weighings	<ul style="list-style-type: none"> ▪ If the enhanced maintenance has to be carried out by trained staff (KERN customer service). At this general revision all load carrying parts must be checked for gaps with magnetic powder
Every 5 years or anyway after 250 000 weighings	<ul style="list-style-type: none"> ▪ All load carrying parts have to be exchanged by trained specialized staff (KERN customer service).
Every 10 years or anyway after 500 000 weighings	<ul style="list-style-type: none"> ▪ Replace the crane scales entirely

Important note

When checking for wear and tear please refer to the drawing (KERN HUM fig. 3, chap. 9.3.1; KERN HUS fig. 4, chap. 9.3.2) below.

9.3 Checklist „regular maintenance“, (see chapter 9.2)

9.3.1 KERN HUM

Original dimensions crane scales, serial no.: Capacity									
Shackle					Hooks				
a (mm)	b (mm)	c (mm)	Wear and tear	Positioning screws	d (mm)	e (mm)	Angle α (°)	Wear and tear	Safety bracket
Date Tester									

	Shackle					Hooks						
	a	b	c	Wear and tear (see grey fields)	Fixing screws	d	e	Angle α	Wear and tear (see grey fields)	Safety bracket	Date	Tester
Max. admitted variation	5 %	0 %	5 %	No deformation or cracks	tight	10 %	5 %	10 °	No deformation or cracks	Perfect function		
Revision prior to first use												
3 months / 12 500 x												
6 months / 25 000 x												
9 months / 37 500 x												
12 months / 50 000 x												
15 months / 62 500 x												
18 months / 75 000 x												
21 months / 87 500 x												

	Shackle					Hooks						
	a	b	c	Wear and tear (see grey fields)	Fixing screws	d	e	Angle α	Wear and tear (see grey fields)	Safety bracket	Date	Tester
Max. admitted variation	5 %	0 %	5 %	No deformation or cracks	tight	10 %	5 %	10 °	No deformation or cracks	Perfect working order		
24 months / 100 000 x												
27 months / 112 500 x												
30 months / 125 000 x												
33 months / 137 500 x												
36 months / 150 000 x												
39 months / 162 500 x												
42 months / 175 000 x												
45 months / 187 500 x												
48 months/200 000												
51 months / 212 500 x												
54 months / 225 000 x												
57 months / 237 500 x												
60 months/250000x	➔ All load carrying parts have to be exchanged by a service partner authorised by KERN.											

bold letters = this maintenance work has to be carried out by a service partner authorized by KERN.

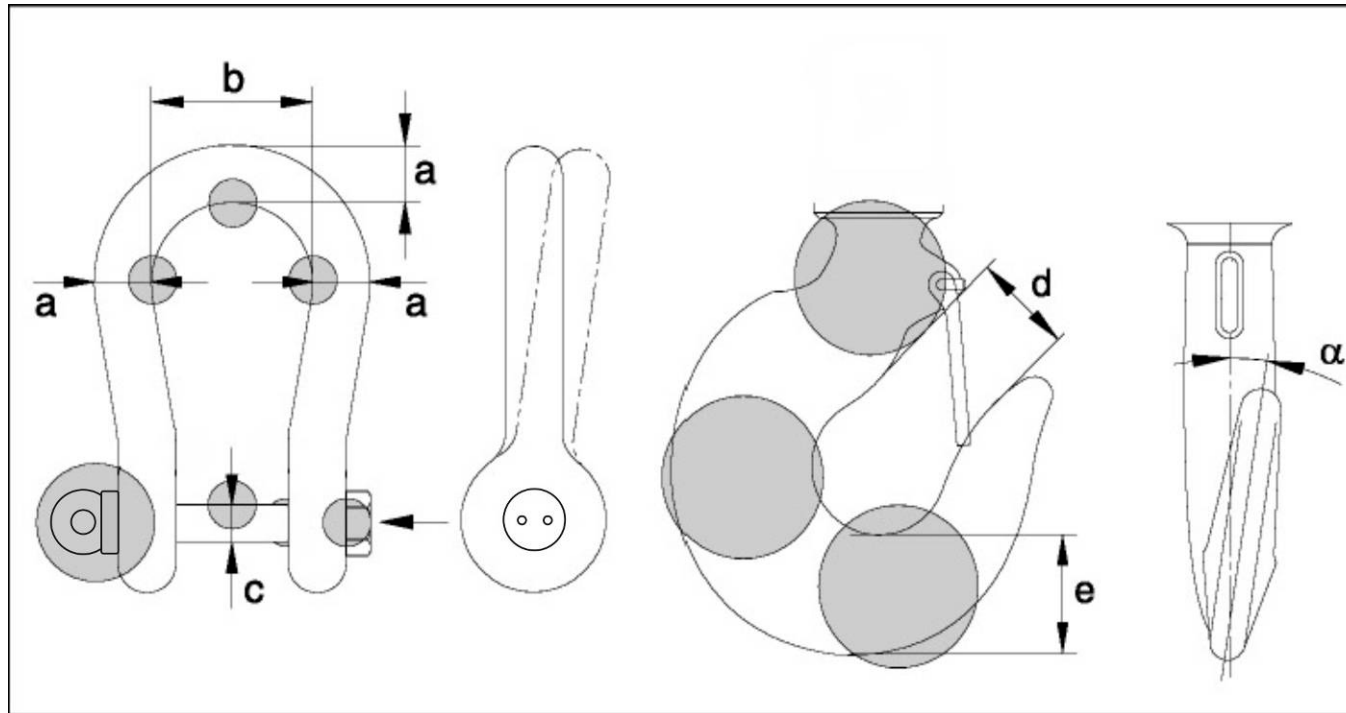


Fig. 3

9.3.2 KERN HUS

Original dimensions crane scales, serial no.: Capacity							
Eyelet			Hooks				
a (mm)	b (mm)	Wear and tear	c (mm)	d (mm)	Angle α (°)	Wear and tear	Safety bracket
Date Tester							

	Eyelet			Hooks						
	a	b	Wear and tear (see grey fields)	c	d	Angle α	Wear and tear (see grey fields)	Safety bracket		
Max. admitted variation	5 %	0 %	No deformation or cracks	10 %	5 %	10 °	No deformation or cracks	Perfect working order	Date	Tester
Revision prior to first use										
3 months / 12 500 x										
6 months / 25 000 x										
9 months / 37500 x										
12 months/ 50 000 x										
15 months / 62 500 x										
18 months / 75 000 x										
21 months / 87 500 x										

	Eyelet			Hooks						
	a	b	Wear and tear (see grey fields)	c	d	Angle α	Wear and tear (see grey fields)	Safety bracket		
Max. admitted variation	5 %	0 %	No deformation or cracks	10 %	5 %	10 °	No deformation or cracks	Perfect working order	Date	Tester
24 months / 100 000 x										
27 months/ 112 500 x										
30 months/ 125 000 x										
33 months/ 137 500 x										
36 months/150000 x										
39 months /162 500 x										
42 months /175 000 x										
45 months /187 500 x										
48 months/200000 x										
51 months /212 500 x										
54 months /225 000 x										
57 months /237 500 x										
60 months/250000x	➔ All load carrying parts have to be exchanged by a service partner authorised by KERN.									

bold letters = this maintenance work has to be carried out by a service partner authorized by KERN.

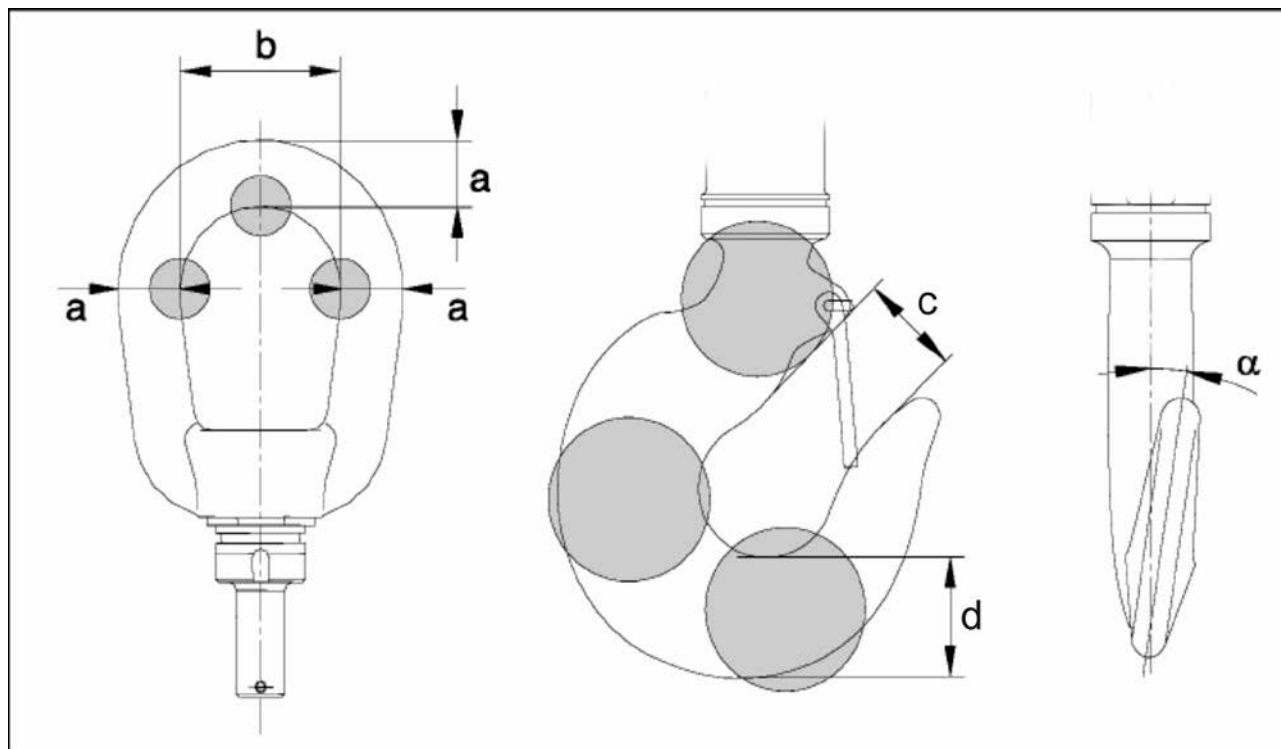


Fig. 4

10. Enclosure

10.1 Checklist „Enhanced maintenance“ (General revision)

The enhanced maintenance has to be carried out by a service partner authorized by KERN.

Crane scales		Model Serial no.					
Interval	Magnetic powder test for cracks	Hooks	Shackle	Screwed connections	Date	Name	Signature
12 months / 50 000 x							
24 months / 100 000 x							
36 months / 150 000 x							
48 months / 200 000 x							
60 months / 250 000 x							
72 months / 300 000 x							
84 months / 350 000 x							
96 months / 400 000 x							
108 months/450 000 x							
120 months/500 000x	➔ Replace crane scales entirely						

10.2 List „spare parts and repair of safety-relevant parts“

Repair has to be carried out by a service partner authorized by KERN.

Crane scales	Model Serial no.			
Part	Action	Date	Name	Signature

Crane scales	Model Serial no.			
Part	Action	Date	Name	Signature